



# X7 3000 ROBOTIC MOWER

SAFETY AND OPERATING MANUAL PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATING THE UNIT

LMRX7







# **TABLE OF CONTENTS**

1. PLATFORM X OVERVIEW 1.1 Introduction	3
1.2 Box Contents 1.3 Parts and Functions 1.4 Symbols and Decals 1.5 LawnMaster All-Scenario Positioning 1.6 Specifications	
2. SAFETY INSTRUCTIONS 2.1 General Safety Instructions	8
2.2 Safety Instructions for Installation 2.3 Safety Instructions for Daily Operation 2.4 Safety Instructions for Maintenance 2.5 Battery Safety	
3. INSTALLATION AND MApping	10
3.1 Preparations 3.2 Install the Charging Station 3.3 Install the Antenna 3.4 Activate the Mower 3.5 App Connection 3.6 Mapping	
4. DAILY OPERATION	17
4.1 Display and Control on the Mower 4.2 loT 4.3 Obstacle Avoidance	
5. MAINTENANCE	21
5.1 Cleaning 5.2 Replace Blades 5.3 Transportation	
5.4 Battery 5.5 Power Supply 5.6 Storage	
5.7 Recycling and End-of-life Disposal	
6. FAQ & TROUBLESHOOTING	25
6.1 FAQ 6.2 Data Privacy 6.3 Troubleshooting	
7. IMPORTANT INFORMATION	27
7.1 Disclaimers 7.2 Contact Information	
8. WARRANTY	29

Thank you for purchasing our LawnMaster X7 3000 Robotic Mower, the information contained within this manual will help you to have many years of safe and trouble free use of this LawnMaster product. For all enquries contact robotics@steelfort.co.nz

# 1. PLATFORM X OVERVIEW

# 1.1 INTRODUCTION

The LawnMaster Platform X system includes a robotic lawn mower, a charging station, and an RTK base station. Both the robotic mower and the RTK base station receive satellite signals for positioning. The mower uses advanced centimeter-level RTK, VSLAM, and LawnMaster AIR (Artificial Intelligence Recognition) to generate accurate real-time environmental maps, ensuring precise device location.

# **Robotic Mower App**

The LawnMaster Robotic Mower App is used for configuring and managing the daily operation of the LawnMaster robotic lawn mowers.







Spare

Screws

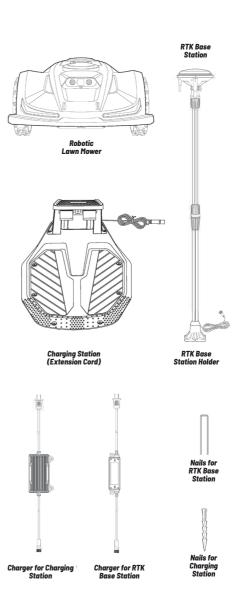
12 Spare

Expansion

Bolts

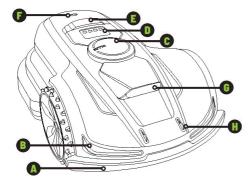
iOS



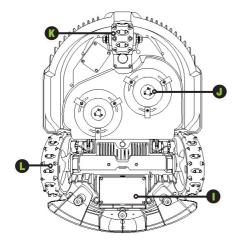


# 1.3 PARTS AND FUNCTIONS

# **Top View**



#### **Bottom View**



NOTE: Do not immerse the machine in water, as this may damage the components and void the warranty within the specified period.

- A Collision Bumper When visual positioning is unavailable, the collision bumper ensures the machine continues to operate smoothly.
- **B -** LED Lights Various LED lights on the mower indicate its operational status through different light patterns.
- C RTK Positioning Antenna An interactive positioning device that connects the RTK base station, the mower, and satellites.
- D Control Panel Used to power the machine on or off, initiate commands for operation or return, and more.
- **E** STOP Button An emergency stop button to halt the machine immediately in case of an urgent situation.
- **F** Rain Sensor The rain sensor detects precipitation, prompting the machine to automatically return to the charging station based on user settings.
- **G** Binocular Camera Al-assisted binocular camera that enables the mower to detect and avoid obstacles.
- **H** Charging Electrodes The electrodes on the mower connect with the charging station to recharge the battery.
- I Battery Compartment Houses the machine's battery.
- **J** Rotating Cutting Plate Trims the lawn while the machine is in operation.
- **K** Wheel Hub Motor Provides precise steering control and power for smooth operation.
- L Drive Wheels Delivers power for movement with superior off-road capability.

# 1.4 SYMBOLS AND DECALS

These symbols can be found on the product. Please read them carefully



WARNING: Read the user instructions before operating the product.



WARNING: Disable the product before working on or lifting the machine. Never touch the rotating blade

	WARNING: Keep a safe distance from the machine when operating. Keep other persons out of the danger area.
	WARNING: Do not ride on the machine.
	Read the user instructions.
Lwa 60dB	Sound power level determined by New Zealand outdoor noise standards. Emission details can be found in Technical Data.
X	It is not permitted to dispose this product as normal household waste. Ensure that the product is recycled in accordance with local legal requirements.
<b>\Phi</b>	Class III
===	DC

# **SYMBOLS ON BATTERY PACK**

	Read the user instructions.
	Do not discard the battery into fire and do not expose the battery to a heat source.
	Do not immerse the battery into water.
Li-ion	Recyclable Mark.
X	It is not permitted to dispose this product as normal household waste. Ensure that the product is recycled in accordance with local legal requirements.

# **SYMBOLS ON CHARGER**

	Read the user instructions.
T2A	Replace with fuse in accordance with rating.
T3.15A	Replace with fuse in accordance with rating.
T5A	Replace with fuse in accordance with rating.
	Class II Construction.
X	It is not permitted to dispose this product as normal household waste. Ensure that the product is recycled in accordance with local legal requirements.

# **SYMBOLS ON ROBOT SCREEN**

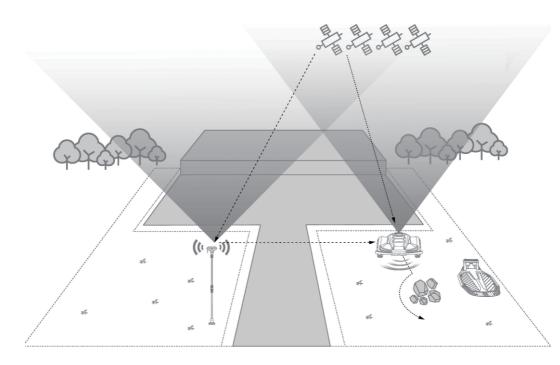
(h)	Power on/off
START	Start button
HOME	Home button
OK OK	OK button
8	Pin code settings
	Time settings
*	Bluetooth
\$	Wi-Fi

# 1.5 LAWNMASTER ALL-SCENARIO POSITIONING

RTK full-frequency satellite positioning technology helps the mower acquire high-precision location data. Combined with VSLAM technology and LawnMaster AIR (Artificial Intelligence Recognition), the mower can navigate and perform positioning tasks in all scenarios, including complex environments, ensuring high-quality lawn maintenance at all times.

LawnMaster's integration of advanced hardware and intelligent algorithms significantly enhances the mower's ability to recognise its environment, improve positioning accuracy, and boost performance. Acting like a human brain, LawnMaster's advanced algorithms process data from RTK (Real-Time Kinematic), VSLAM (Visual Simultaneous Localisation and Mapping), IMU (Inertial Measurement Unit), and odometers, optimising environmental recognition in various conditions.

LawnMaster RTK technology, by receiving full-frequency satellite signals and conducting real-time positioning, allows users to set virtual boundaries for the mower to operate **without the need for traditional boundary wires**. Within these virtual boundaries, the mower plans highly precise mowing paths, ensuring maximum coverage and efficiency.



# **1.6 SPECIFICATIONS**

TECHNICAL SPECIFICATION	X7-3000
Boundary Wire	Wireless / Boundary Free
Maximum Mowing Area	3000m <sup>2</sup>
Cutting Height	20-100mm
Height Adjustment	Adjusted Via APP
Cutting Width	35cm / 350mm
Battery Capacity	10 Ah
User Interface	App & Keypad Display
Maximum Slope	35º (70%)
Dimensions	74.1 x 51.3 x 25.9 cm
Net Weight	14.1kg
Sound Power Level LWA	60 dB (A)
Sound Power Uncertaintie KWA	3 dB (A)
Sound Pressure Level LpA	52 dB (A)
Sound Power Uncertainties KpA	3 dB (A)

FEATURES	
Wi-Fi / Bluetooth	•
Intelligent Mapping	•
Path Planning	3 Options
VSLAM	•
Super Wi-Fi	•
FOTA	•
Quick Return to Charging Station	•
AWD (all wheel driven) Wheels	3 Wheels
Garden Map on APP	•
Multi-Zones	Up to 10
Working Schedule (setted in APP)	Automatic or manual setting via APP
Water Wash	•
Anti-Theft: by GPS + 4G*	0
Google Assistant & Amazon Alexa	•
Pin Code	•
LED Head Lights	•

YES: ● | OPTIONAL: O

# **ACCESSORIES**

8 x Base Fitting Nails

1x Charger

1x Power Supply Charger

# 2. Safety and Regulations

# **2.1 GENERAL SAFETY INSTRUCTIONS**

# WARNING

Read all safety warnings, instructions, illustrations, and specifications provided with this product. Failure to follow these instructions may result in electric shock, fire, or serious injury.

This product is not suitable for use by children or individuals with reduced physical, sensory, or mental capabilities, or those lacking experience and knowledge, unless supervised or instructed by a responsible person.

# <u>(1)</u>

# **WARNING:**

- Keep away from the machine and supervise children at all times.
- Save all warnings and instructions for future reference.

# 1. Work Area Safety

- Do not use machines in explosive environments with flammable liquids, gases, or dust, as sparks may ignite them.
- Read instructions carefully and familiarise yourself with controls and proper use.
- Do not allow untrained individuals or children to use the machine; local regulations may restrict the operator's age.
- The operator is responsible for accidents or hazards affecting others or their property.

# 2. Electrical Safety

- Mains plugs must match outlets. Never modify the plug or use earthed charger plugs, as this reduces electric shock risk
- Avoid contact with earthed surfaces like pipes or radiators to prevent shock.
- Do not misuse power cords. Keep them away from heat, oil, sharp edges, or moving parts.
- Use an RCD-protected supply in damp areas to reduce the risk of electric shock.
- Install the perimeter delineation system correctly as per instructions.
- Inspect the area for foreign objects like stones or wires before use.
- Regularly check blades and parts for damage, replacing them in sets to maintain balance.
- On multi-spindle machines, rotating one blade

may cause others to move.

# 3. Personal Safety

- Only trained individuals should operate the machine, as untrained use is dangerous.
- Stay alert, avoid operating when tired or under the influence of substances.
- Remove keys or wrenches before operating to avoid injury.
- Maintain balance and footing for better control during operation.
- Do not become complacent with frequent use carelessness can cause injury.

## 4. Machine Use and Care

- Disconnect the plug or remove the battery before adjustments, accessory changes, or storage to prevent accidental starts.
- Regularly maintain the machine, checking for damage or misalignment, and repair before use.
- Use the machine and accessories as instructed, considering conditions and tasks to avoid hazards.
- Never operate the machine with defective guards or without safety devices like deflectors and grass catchers.
- Never operate the machine with defective guards or without safety devices like deflectors or grass catchers in place.
- Keep hands and feet away from rotating parts and stay clear of the discharge opening at all times.
- Never pick up or carry the machine while the motor is running.
- Activate device lock/Set into "LOCK" to the machine; before clearing a blockage; before checking, cleaning or working on the machine.
- Do not leave the machine to operate unattended if you know that there are pets, children or people in the vicinity.

# 5. Service

- Have your machine serviced by a qualified technician using identical replacement parts to maintain safety.
- Keep all nuts, bolts, and screws tight to ensure safe operation.
- Regularly check the grass catcher for wear or damage.
- Only use the correct type of replacement cutting parts.
- Replace worn or damaged parts for safety.



- Charge batteries using the manufacturer's recommended charger to avoid electric shock, overheating, or leakage
- If electrolyte leakage occurs, flush with water and seek medical help if it contacts eyes.
- Follow the manufacturer's instructions for machine servicing.

# 6) Battery Tool Use and Care

- Recharge only with the manufacturer-specified charger to avoid fire risk.
- Use power tools only with designated battery packs to prevent injury or fire.
- Keep unused battery packs away from metal objects like coins or screws to avoid shortcircuiting and fire.
- If battery liquid leaks, avoid contact and flush with water. Seek medical help if it contacts eves, as it may cause burns.
- Do not use damaged or modified batteries, as they may cause fire, explosion, or injury.
- Do not expose a battery pack or tool to fire or temperatures above 130°C, as this may cause an explosion.
- Follow all charging instructions and avoid charging the battery pack or tool outside the recommended temperature range. Improper charging or charging outside the specified range can damage the battery and increase fire risk.

# 2.2 SAFETY INSTRUCTIONS FOR INSTALLATION

- Do not install the charging station or accessories near or under combustible materials (within 24"), as malfunction could cause overheating and a fire risk.
- Keep the power supply at a safe height to avoid contact with water, and never place it on the ground.
- Do not cover the power supply, as condensation can damage it and increase the risk of electrical shock.
- Avoid installing the charging station in areas prone to standing water.

# 2.3 SAFETY INSTRUCTIONS FOR DAILY OPERATION

- Keep hands and feet away from rotating blades and avoid contact when the product is ON.
- 2. Use park mode or turn the product OFF when

- people, especially children or animals, are in the area.
- Ensure the lawn is clear of objects like stones, branches, tools, or toys to prevent blade damage.
- 4. Do not lift or move the product when it is ON.
- Prevent the product from colliding with people or animals; stop it immediately if someone is in its path.
- Do not place objects on the product, charging station, or RTK reference station.
- Do not use the product if the STOP button is faulty.
- 8. Always turn the product OFF when not in use.
- Avoid using the product at the same time as a pop-up sprinkler by scheduling them separately.
- Do not operate the product when there is standing water in the area, such as after heavy rain.

# 2.4 SAFETY INSTRUCTIONS FOR MAINTENANCE

- Turn the product OFF before performing any maintenance.
- Avoid using high-pressure washers or solvents to clean the product.
- Disconnect the charging station's plug before performing any cleaning or maintenance.

# 2.5 Battery Safety

Lithium-ion batteries can explode or catch fire if disassembled, short-circuited, exposed to water, fire, or high temperatures. Handle with care, avoid dismantling, and do not subject the battery to electrical or mechanical abuse. Store away from direct sunlight.



# 3.1 Preparations Install APP

#### iiiStaii A

#### Note

When necessary, the App will request access to Bluetooth and Wi-Fi networking, to ensure proper setup and future functionality, grant access to these features.

Scan the QR code to download the Robotic Mower App, or search for "Sunseeker Robot" in the Google Play Store (Android) or the Apple App Store (iOS). After installation, please create a new account and sign in.







iOS

Android

# Prepare the mower

Ensure that Bluetooth on your phone is turned on, and scan the machine's SN QR code to identify the model and proceed with the corresponding installation guide.



# Prepare the lawn

- **A.** Clear away any debris, piles of leaves, toys, wires, stones, or other obstacles.
- **B.** To ensure safety, please make sure that children and pets are off the lawn.
- **C.** Please cut your lawn to a height of no more than 10 cm before using the robotic mower.
- **D.** The working area specifications for the robotic lawn mower are as follows: 3000m² (X7) and 6000m² (X7 Plus).
- **E.** If there are narrow passages within the working area, ensure the passage width is greater than 80 cm.

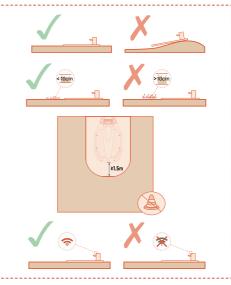
#### Recommended lawn types are shown in the pictures below:



# 3.2 Install the Charging Station

# Find a proper location

- **A.** To ensure that the lawn mower can successfully exit and return to the charging station, install the charging station on an open flat non-hardened ground.
- **B.** The charging station should be within the coverage area of the household Wi-Fi and close to a power source.
- C. The charging station can be placed either inside or outside the mower's working area. For safety reasons, it is recommended to keep the charging cable outside the mowing area.
- **D.** There should be no obstacles within 1.5 m in front of the charging station.
- E. If there is grass, it should be lower than 10 cm.



- **F.** Ensure that the area above the charging station is as open as possible, free from trees, buildings, or other obstructions.
- **G.** If full openness on all sides can't be achieved, for mowers located in the Northern Hemisphere, try to keep the southern sky unobstructed; for mowers in the Southern Hemisphere, ensure the northern sky is as open as possible.

# Install the charging station

**A.** A hammer or similar tool can be used to nail the charging station onto non-hardened, flat ground.

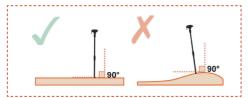


- **B.** Connect the charging cable on the charging station to the charger, then plug it into the power supply. At this point, the green light on the charging station will remain steady, indicating that the station is powered on.
- C. For safety reasons, it is recommended to keep the charging cable outside the mowing area. If there is a significant distance between the charging station and the power supply, ensure that the power cable is securely fastened to the ground or wall to ensure safe operation.

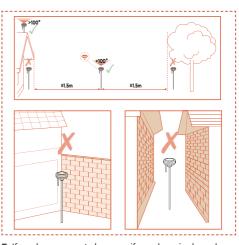


# 3.3 Install the Antenna Find a proper location

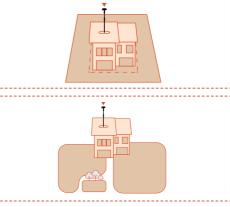
**A.** Place the Antenna upright. Avoid installing the Antenna on a slope.



- **B.** The Antenna should be within the coverage area of the household Wi-Fi, which is the same Wi-Fi used by the mower, and close to a power source.
- **C.** To ensure a good reception of satellite signals, install the Antenna in an open and flat space with nothing blocking the signal, where it has a at least 100° clear signal receiving angle with unobstructed sky.
- **D.** The distance between Antenna and wall or trees need to be greater than 1.5 m.



**E.** If you have separate lawns or if your lawn is shaped like the letter "O", "U", we recommend that you install the Antenna on the roof.



**F.** If full openness on all sides can't be achieved, for Antenna located in the Northern Hemisphere, try to keep the southern sky unobstructed; for Antenna in the Southern Hemisphere, ensure the northern sky is as open as possible.

#### Note

After installing the Antenna, its position can be adjusted to obtain a higher quality satellite signal. However, ensure that the mower remains on the charging station and in charging mode during the relocation of the Antenna.

## Install the Antenna

**A.** If the Antenna needs to be installed on the non-hardened ground, use nails for Antenna to secure it.

- **B.** If the Antenna needs to be installed on the roof, use expansion bolts (with plastic sleeves) for installation.
- **C.** Connect the charging cable from the Antenna to the adapter, then plug it into the power supply.
- **D.** You can choose to secure the hanging power cable to the Antenna holder using cable clip. For safety, ensure that any ground-level power cables are placed outside the working area.
- **E.** Perform a visual check of the satellite signal. At this stage, the location indicator light should be solid green and power indicator light should be blinking green.



# Check the satellite signal



- Location Indicator Light
- Solid green: Good satellite signal at this location.
- Solid orange: Weak satellite signal at this location; it is recommended to reinstall the Antenna in an area with better signal, free from obstructions.
- Solid red: Very weak satellite signal at this location; you must reinstall the Antenna in an area with a better signal, free from obstructions.
- Wi-Fi Indicator Light
- Solid green: Wi-Fi connected and server access established
- : Blinking green: Wi-Fi connecting or not connected to the server
- O No green light: Wi-Fi not connected
- Super Wi-Fi Indicator Light
- Solid green: The Antenna is communicating normally with the mower
- Blinking green: The Antenna is pairing with the mower
- O No green light: Communication between the Antenna and the mower has failed.

- U Power Indicator Light
- Solid green: Power abnormality
- : Blinking green: Power normal
- O No green light: No power



# Caution

- Do not drop chargers on the ground within the work area.
- If the charging station is installed within the work area, secure the extension cable to the ground to ensure the proper operation of the mower.



# WARNING

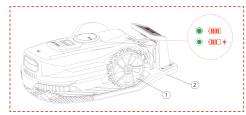
- DO NOT charge if the machine, charger, charging station, or power socket is damaged.
- DO NOT charge the mower when the temperature is below 3±3°C (32±10°F), or above 57±3°C (129±10°F). When the temperature limit is exceeded, the battery will not charge.
- Immediately stop charging if an abnormal smell, sound, or light appears.
- Avoid charging near flammable or explosive materials.

# 3.4 Activate the Mower Preparation

Please make sure that the charging station has been properly installed and connected to the power supply, and the Antenna has been properly installed and connected to the power supply.

# Activate the mower

A. Push the mower into the charging station, ensure that the charging electrodes connect properly. The green light on the charging station flashing indicates normal charging. When the mower is fully charged, the indicator light will remain solid green.



#### Note

If the indicator light remains off even when there is power supplied properly, please contact customer service.

- B. Once the machine charges successfully on the charging station, it will power on automatically. You can also manually power it on by pressing and holding the power button.
- **C.** Enter the default Pin code "0000". Press OK each time you enter "0" to complete the process.
- **D.** If you want to change the password, long press the START and HOME button at the same time to change the password. For more detailed information, please refer to 5.2 Change the PIN Code.



# 3.5 App Connection

#### Note

The following illustrations regarding the App are for demonstration purposes only. Options available may vary depending on software version.

# Preparation

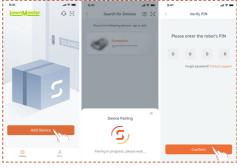
- **A.** Make sure that the machine is on the charging station, charging properly, powered on, and the PIN code has been entered.
- **B.** Ensure that Bluetooth on your phone is turned on. For easier network configuring, we recommend that your phone and the mower remain connected to the same Wi-Fi network.

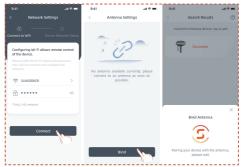
# **App Connection**

**A.** Scan the machine's SN QR code to add your robotic lawn mower. If scanning is not available, you can also connect via Bluetooth.

If you have already scanned the QR code during the "Prepare the Mower" step, the mower will automatically bind to the APP when Bluetooth is enabled on your phone, eliminating the need for another scan.

- **B.** After successful pairing, enter the default PIN code "0000". PIN code can be changed on the phone.
- C. Configure your Wi-Fi for the machine in the App.
- D. Bind the mower to the Antenna in the APP.





# 3.6 Mapping

#### Note

The following illustrations regarding the App are for demonstration purposes only. Options available may vary depending on software version.

#### Preparation

- **A.** Make sure the machine is powered on and successfully connected to Wi-Fi and Bluetooth signals.
- **B.** Make sure that the machine is on the charging station, charging properly, and that the battery level is above 50%.
- **C.** A proper work zone, the charging station and the Antenna are necessary for a complete map creation.
- D. If all the above tasks are ready, click Start Mapping.



# Create work zone

A. Click Work Zone. The mower will automatically exit the charging station and move 1.5 m ahead, without the need for manual intervention.



- **B.** Remotely control the mower to the boundary of the work area. We recommend mapping in a counterclockwise direction along the boundary, and you can adjust the mower's angle beforehand for smoother mapping operations.
- **C.** Once the mower is positioned at the work area boundary and the angle is adjusted, click Start Mapping.

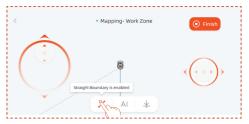


**D.** Remotely control the mower and walk along the edge to create the work zone.

- If your work area includes fences, walls, or other physical boundaries, maintain at least a 5-cm distance along the boundary while remotely mapping.
- If the boundary of your work area is non-grassy, such as a stone path, and the boundary height is similar to the grass, you can use the Cross Boundary function. After mapping is complete, the mower will follow the actual boundary within the Cross Boundary function area for boundary-crossing mowing.



- If the boundary of your work area is a straight line, you can select Straight function, then remote the mower to the end of the straight boundary. A straight boundary line will automatically be generated at the starting and ending points where the straight line function is activated.



- If your work area has clear boundaries, such as nongrassy areas, fences, or stone paths, you can select the Al Segment function, which can automatically detect the boundary and map along it.

#### Note

Al Segment function only supports counterclockwise mapping.



**E.** When finishing the mapping, remotely control the mower to close the path, then click Finish to complete the mapping.

#### Note

It is recommended to click Finish only after the path is completely closed. If the path is not closed but mapping needs to be completed, click Finish and then select Auto Close. The generated map will automatically connect the starting and ending points to ensure the work zone is closed.



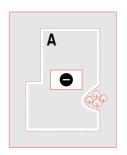
After completing the mapping, if you need to modify the boundary, click Add More and select Edit Boundary to make changes.

- **A.** Remotely control the robot to the starting point of the boundary modification, then click the start button. When modifying the boundary, the robot needs to be controlled to move counterclockwise.
- **B.** Remotely control the robot to the endpoint of the boundary modification, ensuring it intersects with the original map boundary, then click the Finish button.



# Create No-go Zone

If your work area contains a pool or other no-mow zones, it is recommended to create a No-Go Zone to generate a virtual boundary and protect these areas.



A. Click No-go zone.

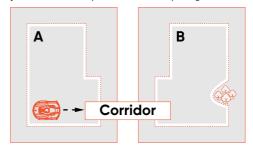


- **B.** Remotely control the mower to the starting point where the No-Go Zone needs to be created, then click Start Mapping.
- **C.** Remotely control the mower to close the area, then click Finish.



# Create multi-zone

If your lawn needs to be divided into multiple work zones, you can create multiple work zones and passages.





After creating the first work zone, you can add a corridor and then create the second work zone:

# A. Click Corridor.

- **B.** Remotely control the mower to the location where the corridor needs to be created, then click Start Mapping. Make sure the corridor overlaps with the first work zone.
- **C.** Remotely control the mower to the end of the corridor, then click Finish.
- **D.** Create the second work zone, ensuring that the corridor overlaps with the second work zone.





After creating the first work zone, you can add the second work zone and then create the corridor:

#### A. Click Work Zone.

- **B.** Remotely control the mower to the location where the second work zone needs to be created and create the second work zone.
- **C.** Create a corridor between the two work zones, ensuring that the corridor overlaps with both work zones.

#### Note

- When creating multiple work zones, it is best not to have the second work zone overlap with the first. If the overlap is too large, the two zones will be automatically merged into one work zone.
- If the corridor does not overlap with the work zone or if no corridor is established between the two work zones, the mower may have difficulty returning to the charging station or completing its tasks.

# Manage

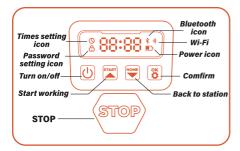
You can also merge, split, rename, and delete work zones, and delete corridors or no-go zones. These operations can be performed under Details > Map Management > Management.





# 4. Daily Operation

# 4.1 Display and Control on the Mower Display



Power icon: The battery power icon shows the remain power of the machine. This icon displaying 1 bar indicates that the power is 30% or under, displaying 2 bars indicates that the remain power is between 31-66%, and displaying 3 bars indicates power of 67% and higher.

Wi-Fi icon: The Wi-Fi icon indicates whether the machine connects successfully to the Wi-Fi or not.

Bluetooth icon: The Bluetooth icon indicates whether the machine is connected to Bluetooth successfully or not.

**Time setting icon:** The time setting icon indicates that the machine has entered the time setting mode.

Password setting icon: The lock icon lighting up indicates that you need to enter the password or change the machine's password.

Dashboard display: The dashboard display shows the different states and modes the machine is in:

- . idle: The machine is in standby mode and there are no tasks in execution at this time.
- . Running light: The machine is in working mode. At this time, the disk is rotating at high speed. Please keep away from it.
- . ---: When the rain delay is turned on, the machine recognizes that it is raining at this moment, ends the current work and returns to the charging station.
- . stop: The emergency stop button was pressed on the machine.

# **Basic Control**

Turn on: Press and hold power button for 2 s.

Turn off: Press and hold power button for 3 s.

When the mower is turned off, you will see the word "bye" displayed on the dashboard and then the screen will turn off.

Start working/Turn on: Press START button and then OK.

Back to station/Turn off: Press HOME button and then OK.

Stop mower operation: Press STOP.

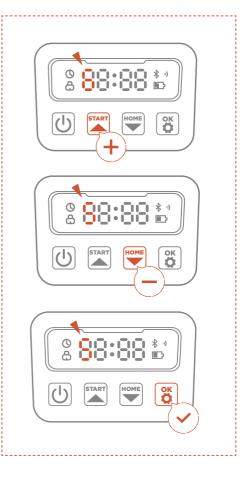
Exit STOP mode: Press START button and then OK, or press HOME button and then OK.

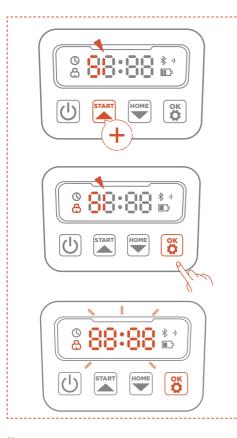
Restart the mower: Press and hold the power button for 10s to turn off the machine, then turn it on again or directly push the machine into the charging station and connect it to the charging electrodes on the station.

# 4.2 Change the PIN code

If the mower is in lock status, enter the PIN code before manually operating the mower. The default code also be changed via the SunseekerRobot app.

- A. Long press START and HOME buttons for 3 seconds.
- **B.** When PIN1 is displayed, and after "0---" appears, input the old password.
- **C.** When PIN2 is displayed, and after "0---" appears, input the new password. Press OK to confirm.





#### Note

If the pin code is input wrong, the display will show "ERR".

# 4.3 Schedule Setting

#### Note

The following illustrations regarding the App are for demonstration purposes only. Options available may vary depending on software version.

# Recommended schedule

After mapping, the mower will intelligently generate a mowing schedule from Monday to Saturday based on the map area. The schedule time will be set between 8:00 and 16:00. The Recommend Schedule will be enabled by default.

#### Note

If the mapped area is too large, you may need to enable night mode to meet the mowing requirements. Please check local regulations before enabling night mode.



# **Custom schedule**

If you need to modify the recommended schedule, you can also choose to set a custom schedule.

- A. Press Adjust or Custom button to enter custom settings.
- B. Select the day you want the mower to work.
- **C.** Choose the area where you want the mower to work on that day, or select all areas.
- **D.** Set the start and end times for the mower's operation.

#### Note

If the custom schedule time does not fall within the daytime working hours, the mower will not leave the charging station to mow during schedule times outside of these hours.





# 4.4 APP Introduction



#### Note

The following illustrations regarding the App are for demonstration purposes only. Options available may vary depending on software version.

# Main page introduction



- A. Mower name Click to rename
- B. Mower status display
- C. Help & Guidance
- D. Add device
- E. Mower Bluetooth connection status
- F. Mower Wi-Fi signal status
- G. Mower battery level
- H. Start mowing
- I. Device details page



- **A.** Area selection. Choose between working the entire area or divided zones
- B. Remote control of the mower
- C. Map management / Antenna signal map
- D. Area worked / Estimated work area
- E. Time worked / Next work time
- F. Start mowing
- G. Return to charging station
- H. Message list
- I. Settings
- J. Work log
- K. Schedule settings

# Settings



# A. Work settings

Here you can adjust the settings related to the mower's operation.

- Schedule
- Map Management
- Cutting Spacing
- Mowing Speed
- Cutting Direction
- Cutting Rotation speed
- Edge Cutting Frequency
- AI Sensitivity
- Obstacle Avoidance
- Rain delay
- Energy Saving Mode
- Zone Settings
- B. Device settings

You can adjust the device-related settings here.

- Device Info
- PIN Code
- Antenna Settings
- Firmware Update
- Work Log
- Network Settings
- Time Zone
- Feedback

## 4.5 IoT

The Platform X is an Internet of Things (IoT) device. Connect the mower to the Internet via cellular network or your Wi-Fi network, enabling the following functionalities:

- **A.** Firmware Updates Over-The-Air (OTA), keep your mower updated to the latest features.
- B. Enable remote control through the network:

start mowing, stop mowing, return to charging station, set mowing schedule, set cutting height and other functions.

- C. Remotely monitor the mowing progress and mower location.
- **D.** Report error codes and the mower status through the network.

#### Wi-Fi

Platform X uses Wi-Fi to connect to a network. See Wi-Fi Setting for more details.

#### Note

- Platform X only supports 2.4GHz Wi-Fi network.
- If you are using an iOS device, the mower can only connect to the Wi-Fi that your mobile device is connected to. Please follow the instructions in the app. Connect your mobile device to the Wi-Fi first, then connect the mower to the same Wi-Fi. There are no such requirements for Android devices.

# Firmware updates

We will continue to update the mower's firmware. If there is a new version of the firmware, you will receive a pop-up notification in the app. It is recommended that you update as soon as the latest firmware is available.

When updating the firmware, the conditions below need to be met:

- The machine is on the charging station.
- The network is connected.
- The battery power is more than 30%.
- There is no mowing plan in an hour.

In the process of updating, the ambient light on the mower will flash blue. You can see the update progress on your app. After the update is completed, the ambient light of the mower will turn green.

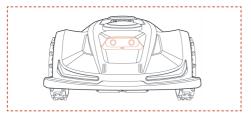


- DO NOT move the mower during the update process.

# 4.6 Obstacle Avoidance

# Binocular camera

Binocular camera is part of the standard equipment of Platform X. They are designed for visual boundary detection, prior obstacle avoidance and visual recognition of QR codes during the charging process, making the mower more intelligent.



#### Note

 If there are too many obstacles in your lawn, consider setting up no-go zones around them or removing some of the obstacles to improve the machine's efficiency.

# Vision AI System

Equitpped with 3D binocular camera, Sunseeker's Vision AI and Deep-learning System excels in perceiving the surrounding environment and navigating obstacles seamlessly. Supported by our proprietary deep learning algorithms, it consistently enhances its comprehension of garden landscapes through continuous data accumulation.

#### **Bumper sensor**

Sensors are installed inside the Platform X to detect obstacles. When the bumper bumps into an obstacle and triggers the sensor, the mower will go backward and avoid the obstacle.

# Note

- Your Platform X is able to avoid objects after bumping into them. However, it is recommended to remove excess clutter before mowing.

# **5. MAINTENANCE**

Experience superior mowing results and prolong your mower's lifespan with regular maintenance. Weekly inspections and upkeep by an adult are essential for optimal performance. Ensure your safety by following these guidelines: avoid maintenance while wearing open sandals or going barefoot, and always wear long trousers and work shoes during servicing. Promptly replace any damaged or worn parts to ensure smooth operation.

#### IMPORTANT:

Only authorised service technicians may open and reseal the chassis compartment located behind the bumper. Performing your own servicing may void the Limited Warranty.

## **NOTICE: INSURANCE**

Your insurance policies may not cover accidents involving this product. Contact your insurance provider or agent to check if coverage is available.

# **5.1 CLEANING**

Use a gentle brush or cloth to clean the exterior, avoiding corrosive solvents like alcohol, petrol, or acetone, as they can damage the mower's aesthetics and internal components. Regularly check and clean the charging station to prevent debris or mud buildup, ensuring all connecting parts of the charging station, extension cable, and power supply are unobstructed for optimal performance.

# A. CHASSIS AND BLADE DISC

To clean the chassis and blade disc, use a brush or water hose. Avoid high-pressure washers, as they can cause damage. Ensure the blade disc rotates smoothly and that the blades pivot freely.

**CAUTION:** High-pressure water can leak into seals and damage electronic and mechanical parts.

#### **B. WHEELS**

Grass on the wheels can hinder the mower's performance on slopes. Remove mud or debris to maintain a good grip. Clean the drive wheels (rear wheels) with a brush to ensure the tread is effective.

# C. RAIN SENSOR

Check the rain sensor monthly to ensure it's clear of mud, grass, or other debris. Wash it off or clean

It with a soft brush, and dry the sensor area after cleaning to prevent false triggering.



#### WARNING:

- Make sure the mower is powered off before cleaning.
- The mower needs to be turned off while it is upside down.



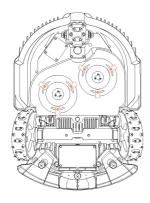
For optimal mowing performance and safety, it's recommended to replace the mower's screws and blades every 1-2 months with frequent use. For a safe cutting system, change all blades and their screws simultaneously. Refer to the section "Specification - Accessories" for compatible parts.



#### WARNING:

- When inspecting or servicing the blade, wear thick gloves.
- We strongly advise using the correct screws and original blades.
- DO NOT reuse the screws. Serious injury may result from doing this.

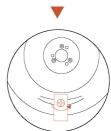
# **HOW TO REPLACE BLADES**

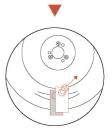


- 1. Turn off the mower.
- Set the mower upside-down on a spotless, soft surface to prevent scratches.



Use a cross-tip screwariver to loosen the screws.





- Remove the screws and blades.
- Fasten the new blades and screws (Torque: 1.0+0.2N.m). Make sure the blades can pivot freely.

# NOTE:

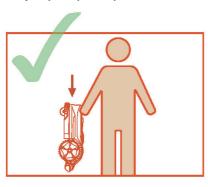
- Replace the screws with a standard torque of 7.0+0.2N.m. Incorrect torque may lead to avoidable issues.
- Ensure the mower is turned off and inspect the blades for proper application. Any abnormal noise or shaking should be investigated.

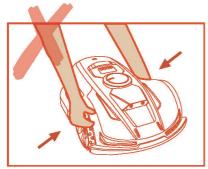
# **5.3 TRANSPORTATION**

To ensure the mower's safety during long-distance transportation, use the original packaging. Before lifting, moving, or transporting the product, ensure it is switched off. Handle with care and avoid excessive force, such as throwing or applying heavy pressure. Never pick up or carry the mower while the motor is running.

# HOW TO MOVE OR LIFT PROPERLY

Carry the mower by the handle, with the blade disc facing away from your body.





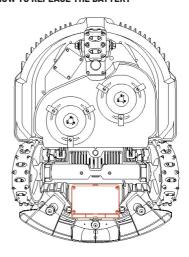
# **5.4 BATTERY**

- Before storing, fully charge the battery to prevent overdischarge and harm to the electrical parts.
- The Limited Warranty will not protect against overdischarge battery damage.
- DO NOT charge the battery pack in air temperatures below 5°C, or above 40°C.
- Longer life and better performance can be obtained if the battery pack is charged when the air temperature is between 18°C and 25°C.
- Battery pack gives its best performance when it is operated at normal room temperature (20 °C + 5 °C).

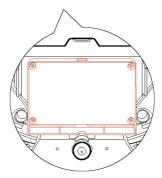
#### NOTE:

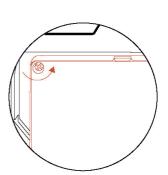
The battery life depends on how often the product is used and the total working hours. When the operation time is significantly shorter than usual per full charge or the lawn is not well-cut, consider replacing the battery.

# HOW TO REPLACE THE BATTERY

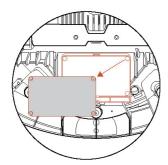


- 1. Turn off the mower.
- Set the lawnmower upside-down on a spotless, soft surface.





 Loosen the 4 screws holding the battery. compartment in place with a cross-tip screwdriver.



- Disconnect the plug.
- Take out the battery pack and replace it with the new one



# **WARNING:**

- Use only the original battery pack or one of the same model specified by LawnMaster. Each mower contains one battery pack.
- The battery capacity for specific models is either 5000 mAh or 10000 mAh
- Do not use non-rechargeable batteries. Only use the provided detachable supply unit for recharging.
- Avoid breaking or disassembling the battery casing. Keep metal objects away to prevent short circuits, and avoid heat sources, fire, and direct sunlight.
- For battery and electrical waste disposal, contact your point of sale or local waste management office.
- The battery compartment should only be opened if a new battery is needed.
- The battery pack contains electrolytes. If leakage contacts skin, wash immediately with soap and water. If it gets in your eyes, flush with water for at least 15 minutes and seek medical help.

# **5.5 POWER SUPPLY**

# **DISCONNECT THE POWER SUPPLY:**

- Before clearing a blockage;
- Before checking, cleaning or working on the machine.
- After striking a foreign object to inspect the machine for damage.
- Regularly examine the cord, plug, enclosure and other parts. If any damage or signs of aging are found, stop using immediately.



#### **WARNING:**

- NEVER use a damaged power supply. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent, or qualified individuals. If the extension cable is faulty, replace it with the 10-meter cable approved by LawnMaster.
- NEVER touch an extension cable or damaged cord until it is unplugged from the power source, as a damaged cord may expose electrical components.
- The power supply should not be used with any other device or battery, as this increases the risk of electrical shock, fire, or injury. Using anything other than original batteries voids product safety.
- DO NOT charge if the battery is leaking.
- Keep the extension cable away from moving parts to prevent damage, which could lead to contact with live components.

# RECOMMENDATION

Connect the mower and/or its peripherals only to a supply circuit protected by a residual current device (RCD) with a tripping current of not more than 30 mA

# **5.6 STORAGE**

- Ensure the mower is fully charged and turned off before storing to prevent over-discharge, which can cause permanent damage.
- Store indoors in a dry, cool place. Exposure to sunlight and extreme temperatures can accelerate component aging and permanently damage the battery.

- Keep chemicals and heat sources (stoves, radiators, etc.) away from the mower, charging station, and power supply.
- Store the power supply in a well-ventilated area, protected from moisture.



# **WARNING:**

Unplug the power supply from the power socket if a thunderstorm is predicted. Cut off all wires and cables that are attached to the charging station. When there is no longer a chance of thunder, reconnect.

#### WINTER STORAGE

#### THE MOWER:

Clean the mower thoroughly before storage. Check the components subject to wear such as the blades. Repair or replace them if they are in poor condition. Store the mower in a dry and frost-free place, while standing on all wheels, preferably in the original packaging.

# THE CHARGING STATION:

Disconnect from the charging station and unplug the power supply from the power outlet. Keep the charging station out of direct sunlight and bring it inside.

# **5.7 RECYCLING & END-OF-LIFE DISPOSAL**

This product is NOT household waste. Get in touch with your municipality, point of sale, or domestic waste service for information on recycling.



#### WARNING:

This product should not be disposed of in a landfill, burned, or combined with regular household trash. It is possible for danger or severe harm to result from the electrical components.

# **6. FAO AND TROUBLESHOOTING**

# 6.1 FAO\*

# Does my garden need to have complete Wi-Fi coverage?

If possible, try to ensure complete Wi-Fi coverage

in the garden. If complete coverage is not possible, at least ensue that there is WiFi coverage near the base station and the charging station. Ensuring WiFi coverage around charging stations is essential for robot to perform OTA updates while charging. Similarly, WiFi coverage near base station ensures that the base station can undergo OTA updates, and also allows robot to upload and receive certain information. \*Note that when binding the base station, it is essential to ensure that the machine is connected to the internet.

# Can the base station and charging station be moved after the map is created?

The charging station can be moved before mapping, but once the map is created, it cannot be moved, or else the machine cannot return and work properly. After the map is completed, the base station cannot be moved; otherwise, a new map needs to be created.

# During mapping, what is the maximum distance between Bluetooth and the machine?

During mapping, the machine connects to the smartphone via Bluetooth. Please ensure that you stay within a distance of no more than 3 ft from the machine during mapping.

# After pressing the stop button on the machine, how can I restart it?

For safety reasons, when the machine is in stop mode, to restart, press "start+ok" or "home+ok" on the screen.

# Meaning of Standard, Stealth, and Custom Modes in Cutting Patterns:

Standard Mode: The machine follows the same trajectory during each operation, efficiently planning mowing paths in an orderly linear fashion. This results in visible vertical stripes on the lawn. Stealth Mode: In contrast to the standard mode, the machine still performs linear cutting but avoids the same trajectory every time. After several mowing cycles, the vertical stripes on the lawn disappear, leaving no visible traces of the machine's operation. Custom Mode: The machine operates in a user-defined direction after leaving the charging station. After a few cutting cycles, the lawn will show the customed pattern set by the user.

# Can the Machine Cut the Borders?

After completing overall mowing, the machine will perform one additional border cutting.

# How Do I Know if the Robot/Base Station Software Needs an Update?

You will receive notifications in the app if there are new software updates.

Can I Upgrade the Machine Using a USB Flash Drive? Currently not allowed or recommended.

# Do I Need to Bring the RTK Base Station Indoors in Winter?

Nο

#### How Should I Store the Machine in Winter?

It is recommended to store the machine indoors during winter. Before storage, ensure the machine is fully charged and turned off.

# Can I Wash the Machine with Water?

Ensure all screws are tightly secured before cleaning the machine. Use a regular water hose for cleaning; avoid using a high-pressure water gun to prevent potential damage.

# How Often Should I Replace the Blades?

For lawns that haven't been serviced by the robotic lawnmower before and have longer grass, consider replacing the blades every 1-2 months.

In the case of continuous use for lawns where the grass length remains consistently controlled, the blades are expected to last for an extended period

#### What if I Forget the Machine Password?

due to the maintained grass height.

If the machine is bound to the app, reset the password within the app. If not bound, contact customer service to reset the password.

# What Happens If I Enter the Wrong Password Continuously?

After 10 consecutive wrong password attempts, the screen will display "LOCK." Keep the machine powered on and wait for 15 minutes to enter the password again.

#### **6.2 DATA PRIVACY**

Processing of personal data within Platform X

# Who and why?

When you register for and use LawnMaster's Platform X, we (as the controller) will process your personal data for the following purposes:

- Provide Connection to Platform X: We will
  process your data to connect you to Platform
  X or to make you an offer for this service.
  The legal basis for this processing is that it is
  necessary for the performance of the contract
  you have entered into with us, or to take steps
  prior to entering into that contract.
- Develop and Improve Products and Services:
   We will process your data to further develop
   and enhance our products and services. The
   legal basis is our legitimate interest in this area.
- Enable Connectivity of Platform X: We will
  process your data to use partner integrations
  (e.g., smart assistants) and connect Platform
  X to third-party devices, apps, and services.
  The legal basis for this is also necessary for the
  performance of the contract you have entered
  into with us.
- Provide Relevant Information: We will process your data to provide information related to your Platform X experience. The legal basis is our legitimate interest in keeping you informed about your specific products and services and their features.
- Offer Support and Troubleshooting: We will process your data to provide support and troubleshooting for Platform X. The legal basis is necessary for the performance of the contract you have entered into with us.

If you have given your consent, we may also process your personal data for the following purposes:

- To send you customised advertisements and newsletters about our products and services.
- To send you customer surveys and analyse your input as detailed in such communications.

Your data will be processed for as long as required to fulfill these purposes, but never longer than allowed by applicable laws.

# What personal data do we process?

We may process the following personal data:

#### **Personal Details:**

First and last name, nationality, language preferences.

#### **Contact Details:**

Fmail address, postal address.

# **Account Information:**

Account age, password, account number.

# Platform X Intelligent Mapping Data:

Area names of maps, GPS coordinates.

# **GPS Position/Location Data:**

Location data of the lawn mower.

**Other Platform X Data:** Mower name, pairing names, actions triggered through partner integrations.

## **Device Information:**

Details related to the device used.

# **Use of Location Data**

Some of our services require us to determine the location of your mower (e.g., weather display). When you share your mower's location with us, this data is stored as part of your profile and may be sent to third parties in pseudonymised form to provide the relevant services (e.g., parking the mower in case of heavy rain).

LawnMaster Intelligent Mapping and its related services (e.g., generating a lawn map, live position tracking) rely on the mower sending us its geographic coordinates. This data is stored as part of your profile and used to deliver services, troubleshoot issues, and, after anonymisation, for further technology development. LawnMaster Intelligent Mapping uses a third-party provider, Google, to display the map data.

# **6.3 TROUBLESHOOTING**

# POSSIBLE REASONS FOR THE MACHINE STOPPING IN THE FIELD:

- The machine is stuck in a pit. Remove it and clean the wheels to prevent mud buildup.
- Poor RTK signal. Ensure the area is open; if not, designate it as a restricted zone.
- 3. Failed return to charging station.
- 4. Failed outbound positioning. Confirm the base station meets requirements.

# **REASONS FOR AUTOMATIC RETURN:**

- 1. Low battery power.
- 2. Completion of mowing.
- 3. Obstacles or poor signal preventing completion.

# **REASONS FOR FAILED MACHINE RETURN:**

- Ensure the QR code on the charging station is correctly placed and unobstructed.
- Check for obstacles within 5 ft of the charging station.
- Ensure no strong light sources affect the QR code
- Changing the charging or base station position may require a new mapping.

# REASONS FOR GOING OUT OF BOUNDS:

- Poor boundary signal. Ensure no obstructions above the boundary.
- Virtual boundary is too close; maintain a minimum of 6 inches from the actual boundary.
- 3. Clean the wheels if covered with mud or grass.

# MACHINE STILL WORKING DURING RAIN/RAIN SENSOR TRIGGERING IN DRY CONDITIONS:

- 1. Confirm the rain sensor status in the app.
- 2. Check if the rain sensor is blocked or clean.

# **BLADE OBSTRUCTION:**

- 1. Clean debris from the cutting blade.
- For long grass, use a regular lawnmower to cut it to the allowed length.

# **CUTTING GUIDELINES:**

- Cut no more than half of the total length each time.
- Avoid cutting in rainy weather to maintain quality; set a rain delay of at least 4 hours.

#### MACHINE NOT FOLLOWING THE SCHEDULE:

- 1. Verify machine time settings.
- 2. Check if the rain sensor is triggered.
- 3. Ensure there is power supply.
- 4. Confirm the schedule was saved correctly.
- The machine may be performing a temporary task.

# **MACHINE POSITIONING FAILURE:**

- Ensure all four lights on the base station are green.
- 2. Check if the base station is correctly placed.
- Ensure no obstacles are present in front of the charging station.
- After checks, place the machine back in the charging station and restart if needed.

# 7. IMPORTANT INFORMATION

# 7.1 DISCLAIMERS

We provide after-sale services, excluding:

- Crashes or damage from non-manufacturing factors, including user errors.
- Damage from unauthorised modifications, disassembly, or improper use not following official instructions.

- Damage from improper installation or operation not according to official instructions.
- Damage by a non-authorised service provider.
- Damage caused by unauthorized modification of circuits and/or mismatch or misuse of the battery and charger.
- Damage caused by users who do not follow instructions and manual recommendations.
- Damage caused by operation in bad lawn conditions (i.e., large areas of puddles when restricted areas are not properly set, locations with abundance of stones covering lawn surface, etc.).
- Damage caused by operating the product in environments with electromagnetic interference, including mining areas or proximity to radio transmission towers, highvoltage wires, substations, etc.
- Damage caused by operating the product in environments suffering from interference from other wireless devices, such as transmitters, video downlinks, Wi-Fi signals, etc.
- Damage caused by reliability or compatibility issues when using unauthorized third-party parts.
- Damage caused by operating the unit with a low-charged or defective battery.
- Damage caused by unpredictable factors such as car collisions, wild animal attacks, floods, etc.

This content is subject to change without prior notice.

# 7.2 CONTACT INFORMATION

For any inquiries, assistance, or support regarding your LawnMaster Outdoor Power Equipment, please feel free to reach out to us using the following contact details:

# Steelfort Customer Services 06 350 1350 robotics@steelfort.co.nz

# **Mailing Address**

500 Rangitikei Street Private Bag 11045 Palmerston North New Zealand

Our dedicated customer support team is ready to assist you with any questions or concerns you may have. Thank you for choosing LawnMaster we're here to help!

#### **WARNING FOR BUTTON CELL OR COIN BATTERY:**

- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children.
- Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Battery type: CR2032.
- Nominal voltage: 3.0 Vdc.
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- The product contains non-replaceable button
  cell

# 8. WARRANTY

Subject to the following conditions, this unit is covered by a comprehensive two-year warranty.

The unit is designed for domestic purposes only, issues and faults due to commercial use may not by covered by warranty. The warranty covers all manufacturing faults but excludes normal wear and tear, misuse, neglect, accidental damage or defects arising from failure to comply with instructions as outlined in this owners manual. Only genuine spare parts can be used for repairs and this must be carried out by an authorised LawnMaster Services Dealer to maintain warranty.

Warranty does not cover the cost of transportation of any part(s) but does cover the labour/parts cost incurred in repairing or replacing any defective part(s) consequential or special damages and / or expenses resulting from any defect.

If the unit requires further repairs or services please visit **www.lawnmaster.co.nz** to find your local LawnMaster dealer.

For all other enquries contact Steelfort Customer Services 06 350 1350 - robotics@steelfort.co.nz



# **FIND US**





(f) (iii) lawnmasternz

500 Rangitikei Street, Private Bag 11045 Palmerston North, 4412, New Zealand 06 350 1350

# Steelfort Auckland

880 Great South Road, Penrose Auckland, 1061, New Zealand 09 573 1324

# Steelfort Christchurch

21 William Lewis Drive, Sockburn Christchurch, 8042, New Zealand 03 324 2480